Patient safety education for medical residents

Jansma, J.D.

2011

Chapter 7

Possible solutions for barriers in incident reporting by residents

Kartinie Martowirono
José D. Jansma
Scheltus J. van Luijk
Cordula Wagner
A. Bart Bijnen

Journal of Evaluation in Clinical Practice 2010

Abstract

Rationale, aims and objectives
Incident reporting can contribute to safer health care. Since the rate of reporting by residents is low, it is useful to investigate which barriers exist and how these can be solved.

Methods
Data were collected in a large teaching hospital in the Netherlands. The hospital uses a confidential, voluntary and web-based incident reporting system. Residents working in the hospital participated in focus group discussions to explore barriers and possible solutions. An inductive approach was used to analyze the transcribed discussions.

Results
In each focus group six to eight residents participated, resulting in a total number of 22 participants. After three focus group discussions, information saturation had been reached. Residents do not report all incidents because of a negative attitude towards incident reporting, because they experience a non-stimulating culture and because of a lack of perceived ability to report. Residents suggest several solutions to solve the barriers: provide the possibility to report anonymously, provide feedback, create an incident reporting culture, simplify the procedure, clarify what and how to report, excite residents to report.

Conclusions
Residents have useful suggestions to resolve the barriers that prevent them from reporting incidents. They include solutions that influence attitude, culture and perceived ability. These suggestions should be considered when making an effort to improve incident reporting by residents.

Introduction

The analysis of incidents collected through reporting systems can provide knowledge about the nature and causes of these incidents.[1] This knowledge can be used to develop initiatives to prevent incidents from happening again. Residents commonly encounter incidents.[2,3] Unfortunately, underreporting is a significant problem, undermining the ability to improve patient safety.[4,5,6]

In a large teaching hospital in the Netherlands, in 2007/2008, a study was conducted to explore the effectiveness of a 2-day patient safety curriculum on the attitudes, intentions and behavior of residents towards voluntary incident reporting. It concluded that patient safety education can have long-term positive effects on the incident reporting attitudes and behavior of residents. However, the study revealed an unclarified inconsistency between individuals' intentions to report incidents and actual changes in incident reporting behavior. Further research was recommended to gain insight in the existing barriers that hinder reporting of incidents and to learn how these barriers can be overcome.[7] This study carries on from the patient safety curriculum study and is conducted in the same hospital. It not only explores the barriers that residents experience towards incident reporting, but also focuses on the solutions that residents provide for solving them, since this may result in improvements of the incident reporting system that actually fit the residents´ needs.

The available information on barriers to incident reporting by residents is mainly based on surveys. They include lack of feedback, lack of time, extra paper work and concerns about career and personal reputation.[6,8] To our knowledge, there is no qualitative information available about solutions suggested by residents to overcome the barriers. This study provides information on barriers and solutions based on focus group discussions rather than on surveys thereby using group processes to help people to explore and clarify their views which enables dimensions of understanding in the views of participants that other methods cannot reach.[9,10,11] This enhanced understanding is useful when efforts are made to optimize the incident reporting system. By conducting this study, we sought to answer the following research question: which barriers to incident reporting do residents experience and how can these be tackled?

Methods

Setting

Data were collected in August and October 2008 in a large teaching hospital in the Netherlands which has a total capacity of 706 beds. In this period 159 residents worked in the hospital. The hospital uses a confidential, voluntary and web-based incident reporting system. It is possible to report an incident that involves the resident himself as well as to report an incident that involves a colleague.

Participants

All residents working in the hospital received an invitation by e-mail to participate in a focus group session. To increase the number of respondents, focus groups were held late afternoon in the hospital while a simple meal was provided. Afterwards participants received a gift coupon of € 25,-.

Data collection

Data were collected through focus group discussions. Focus groups are a form of group interview that uses the communication between participants in order to generate data. The interaction among participants can provide valuable information when exploring complex behavior and underlying motivations.[10,11]

Focus group discussions were set up until information saturation had been reached. A skilled moderator facilitated the focus groups using a topic guide (table 1). The guide was developed by studying the literature. The first version was reviewed by an expert panel and revised before use. The opening questions only served as an introduction, focusing the participants on the issues that were being discussed. Preceding the actual focus group discussions, the conditions for an open discussion were optimized by putting emphasis on the fact that the moderator was not associated to the hospital and by underlining the confidentiality of the collected data. An incident was defined as an unforeseen event while providing care that caused, could have caused, or can still cause injury to the patient.[12] During the focus groups two of the authors (KM&JDJ) observed and took notes. After the focus group discussions the participants received a summary of the results to comment upon.

Table 1. Content of topic guide

Opening questions	- Please write down what first comes to mind when you think of barriers to incident reporting. - Read aloud what you have written down. Items are not yet to be discussed. - On a monthly basis, how often do you encounter an incident? How many incidents are actually reported?
Key questions	- What prevents a resident from making a report? - What are the most important barriers mentioned? - How can these barriers be solved?
Final questions	- Are there important issues that we have not discussed? - Do you have any recommendations for the next focus groups?

Data analysis

The focus groups were recorded and transcribed verbatim. The transcriptions were entered into qualitative data analysis software (Atlas-ti, The Knowledge Workbench).[13] The data – transcriptions and observation notes - were then inductively analyzed following the three steps of coding: open coding, axial coding and selective coding.[14] During the process the authors KM and JDJ discussed any difficulties or uncertainties until agreement had been reached. A summary of the results was sent to the participants by e-mail for feedback.

Results

Participants and focus groups

Of the 159 residents who received an invitation, 22 (13,8%) participated in a focus group discussion. Not all disciplines were equally represented. Several cancellations were received. The reasons most mentioned for not participating in a focus group discussion were: being on duty or vacation. Three focus groups were set up. Each group consisted of

six to eight residents. Table 2 summarizes the characteristics of the focus group participants. After three focus groups, information saturation had been reached. The final questions did not result in any major changes of the topic guide. Eight participants responded to the e-mail with the summary of results. Their comments did not lead to any major changes.

Table 2. Characteristics of the focus group participants

Age, years	
Range	25 – 37
Median age	30.4
Sex, n (%)	
Male	15 (68)
Female	7 (32)
Trainee, n (%)	
Yes	14 (64)
No	8 (36)
Discipline, n (%)	
Cardiology	4 (18)
Surgery	4 (18)
Orthopedics	2 (9)
Biological chemistry	2 (9)
Radiology	2 (9)
Internal medicine	2 (9)
Emergency care	1 (5)
Hospital pharmacy	1 (5)
Geriatrics	1 (5)
Pediatrics	1 (5)
Pneumonology	1 (5)
Rehabilitation	1 (5)
Participant in patient safety course, n (%)	
Yes	4 (18)
No	18 (82)

Barrier 1: a negative attitude

I: "Sometimes you know that a certain incident has already been reported, but no one acted upon it. Then why bother to report that kind of incident again? Last Friday an epidural and an intravenous infuse were switched. That is tedious, but it did not happen for the first time and the connections are still the same. Who will start to change that?"

II: "Yeah, and probably it is still the same nurse who commits that mistake."

Incident reporting is negatively valued by residents. Firstly, reporting an incident costs time and is perceived as another administrative act they have to carry out, while they prefer to spend their time on relevant medical activities for patients. Secondly, residents do not always agree with the definition of an incident. Instead of reporting all unforeseen events that caused, could have caused, or can still cause injury to a patient, they assess the usefulness of reporting a certain incident by evaluating the incident characteristics. For example, an incident can be perceived as not useful to report, because it has no major

patient consequences. Several incident characteristics that are evaluated are described in table 3.

Table 3. Incident characteristics that lead to underreporting

This incident has no major patient consequences.
This incident has happened before and has already been reported.
This incident was not preventable.
The cause of this incident is already clear.
This incident is unlikely to happen again.
This is not an incident, but a complication.
This incident is already discussed with the persons involved.

Furthermore, the lack of feedback on a report and the absence of visible system changes strengthens the reservations to report. Besides, reporting an incident can be perceived as disloyal to colleagues as well as not one's responsibility. Finally, residents do not report all incidents because of the perceived negative consequences for themselves, such as legal liability and unpleasant working conditions.

Barrier 2: a non-stimulating culture

I: "It is kind of frowned upon. I'll report this! It's often used as a threat, which makes reporting an incident difficult."

Residents mentioned that superiors do not encourage them to report incidents. Next, incident reporting is considered to be emotionally charged. A vicious circle exists and is maintained: if few incidents are reported, incident reporting will remain emotionally charged. The situation differs between wards.

Barrier 3: a lack of perceived ability

I: "I remember that it takes 15 minutes to make a report. The other day, I wanted to report something. It took quite some time to find the form I needed."

II: "Yeah, if you don't know where to find it, it can certainly take some time."

I: "Exactly, that should be easier. I had to fill out too much forms. So I quit. That was the reason. It took too much time."

A few residents stated that they do not report incidents, because they simply do not think of it. Furthermore, some residents mentioned that they do not know what and how to report. Also, the procedure used is perceived as not user friendly. This barrier was most frequently mentioned. The web-based system is too complicated - for example, one has to fill out all fields of the web form before the form can be submitted, even if one does not have an answer - and takes too much time which residents do not have because of their busy working schedules.

Residents' suggestions for improving incident reporting

I: "It would be nice when, just like the ICT-helpdesk, you can make a phone call to report. You talk to someone and give the essentials. If necessary, they can call back later."

II: "Or send an e-mail."

I: "I know for sure that the amount of reports will increase."

Specific suggestions to solve the barriers they experience are shown in table 4. It should be mentioned that not all residents agreed on anonymous incident reporting. The advantage mentioned was that in this case incident reporting cannot lead to any negative consequences for the residents themselves. Some objections that were mentioned were the fact that in practice it is always possible to find out who was involved in the incident and that interpreting anonymous reports can be difficult. In general, the residents stated that they would like to be consulted more often when new policies that affect residents are prepared since this could lead to policies that actually fit the residents.

Table 4. Residents' suggestions for solving barriers

Solutions to influence attitude	- Provide the possibility to report anonymously. - Provide the possibility to report without identifying the persons involved. - Provide feedback. - Provide feedback to the reporter of an incident on how the report will be handled. Communicate the results of incident reports in terms of system changes.
Solutions to influence culture	- Create an incident reporting culture. - Create a culture in which incident reporting is less emotionally charged, for example by systematically discussing incident reporting within a ward and by a stimulating role of superiors.
Solutions to influence perceived ability	- Simplify the procedure. - Design a procedure in which it is possible for residents to only report the essentials of an incident, for example by making a call or filling out a card or compact (web)form with standard incidents. If necessary, the resident can be contacted for more information. Make it easy for a resident to find out if an incident has already been reported. A balance must be found between the information needed to analyze a report and the time a resident can spend on providing that information. - Clarify what and how to report. - Provide clear information about what to report and how to report, for example during the introduction or a patient safety course or by providing a pocket-size plasticized card. - Excite residents to report. - Draw attention to incident reporting, for example by putting up posters with a catchy slogan.

Getting round barriers in practice

Some residents mentioned that they already found a way to get round the perceived barriers in practice, for example asking a nurse to make a report or discussing an incident with the colleagues involved. They stated that this is more effective, less time consuming and less disloyal to colleagues than making a report. After discussing an incident, reporting is frequently considered to be duplicitous.

Discussion

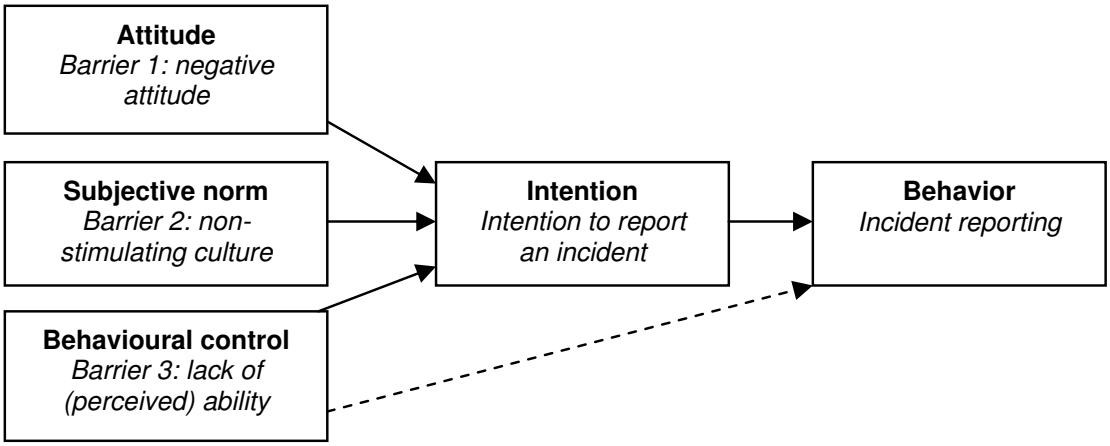
This study explored the barriers that residents experience to reporting incidents and how these barriers can be solved according to the residents. A negative attitude, a non-

stimulating culture and a lack of perceived ability prevent residents from reporting. Residents suggested several practicable solutions to solve the barriers: provide the possibility to report anonymously, provide feedback, create an incident reporting culture, simplify the procedure, clarify what and how to report and excite residents to report.

The Theory of Planned Behavior

The barriers that are found can be categorized using the Theory of Planned Behavior (TPB). The TPB is a widely used social-psychological model focusing on the relationship between attitude, subjective norm, behavioral control, intention and behavior. In short, the theory considers intention to be the immediate antecedent of behavior. The intention is based on attitude, subjective norm and behavioral control.[15] Previously it was suggested that the TPB has relevance for studying the behavior of health care providers.[16] Figure 1 shows a simplified TPB-model and the relation to the barriers that are found in this study.

Figure 1. Relationship between the Theory of Planned Behavior and the barriers found in this study



Practical implications

For as far as we know no other qualitative study on barriers to incident reporting by residents was ever conducted. Although other studies discovered similar barriers based on surveys, the data collected through focus group discussions provides enhanced information that can be very useful. For example, we discovered that the barrier negative attitude consists of many components, which all should be considered in attempts to improve incident reporting by residents.

Our findings showed that in practice residents find ways to get round barriers, for example by discussing incidents with colleagues. This was also demonstrated in previous studies.[5,17] It shows that it is important to underline the significance of formal incident reporting.

Several solutions that were mentioned during the focus group discussions are studied before in quantitative studies. For example, some residents suggested that it should be possible to make a report anonymously. Sharma *et al.* demonstrated that 44% of the surgical trainees participating in their study would report more if the system was anonymous.[6] Another solution that the residents provided was to simplify the procedure by introducing a card system instead of a web-based reporting system. Schuerer *et al.* conducted a study on the introduction of a new card system in a surgical intensive care

unit. This card system replaced an underused online system. The study concluded that a card reporting system, combined with appropriate education, improved overall reporting, especially among physician providers.[18] By contrast, Fukada *et al.* in their study on the impact of system-level activities and reporting design on the number of incident reports in teaching hospitals in Japan demonstrated that online reporting can lead to a 26% increase in physicians' reports. They also demonstrated, in accordance to our findings, that educational activities and a reporting system that consumes less time may improve incident reporting.[19] We explored solutions that residents themselves suggested to improve incident reporting.

Residents perceived the focus group discussions as pleasant and valuable, since they felt they finally had the chance to be involved in policies regarding patient safety in a way that is bottom-up instead of top-down. When making efforts to improve incident reporting by residents these suggestions mentioned by the residents themselves should especially be taken into account.

The barriers found in this study can be categorized using the Theory of Planned Behavior. This is useful since the several practical manuals for constructing Theory of Planned Behavior questionnaires and interventions can be used when considering further research based on our findings.[20,21,22]

Limitations

This study has several limitations. Focus groups contain the risk of social desirability. The possibility exists that some respondents gave answers that were perceived to be more socially acceptable by the group. However, to prevent this from happening the preconditions for an open discussion were optimized putting emphasis on the fact that the moderator was not associated to the hospital and by underlining the confidentiality of the conversations. This study was conducted in one large teaching hospital in the Netherlands. This hospital uses a web-based, confidential, voluntary reporting system. If questions may rise about the generalizability to hospitals where for example different reporting system are used, quantitative research based on the current findings or a study with a similar approach as this study can be conducted to uncover barriers and solutions in another context.

Conclusion

Residents have useful suggestions to resolve the barriers that prevent them from reporting incidents. They include solutions that influence attitude, culture and perceived ability. These suggestions should be considered when making an effort to improve incident reporting by residents. Quantitative research based on the current findings or a study with a similar approach as this study can be conducted to uncover barriers and solutions specific to another hospital.

Reference list

1. Barach P, Small SD. Reporting and preventing medical mishaps: lessons from non-medical near miss reporting system. British Medical Journal 2000;320:759-763.
2. Singh H, Thomas EJ, Petersen LA, Studdert DM. Medical Errors Involving Trainees. Archives of Internal Medicine 2007;167:2030-2036.
3. Jagsi R, Kitch BT, Weinstein DF, Campbell EG, Hutter M, Weissman JS. Residents Report on Adverse Events and Their Causes. Archives of Internal Medicine 2005;165:2607-2613.
4. Kaldjian LC, Jones EW, Wu BJ, Forman-Hoffman VL, Levi BH, Rosenthal GE. Reporting Medical Errors to Improve Patient Safety. Archives of Internal Medicine 2008;168:40-46.
5. Logio LS, Ramanujam R. Medical Trainees' Formal and Informal Incident Reporting Across a Five-Hospital Academic Medical Center. The Joint Commission Journal on Quality and Patient Safety 2010;36:36-42.
6. Sharma A, Jain P, Parmar B, Muzaffar J, Monson JRT. Incident Reporting in Surgical Trainees – Revisited. Journal of Patient Safety 2008;4:1-4.
7. Jansma JD, Wagner C, Ten Kate RW, Bijnen AB. Effects on incident reporting after educating medical residents in patient safety: a controlled study. 2011;submitted.
8. Coyle YM, Mercer SQ, Murphy-Cullen CL, Schneider GW, Hynan LS. Effectiveness of a graduate medical education program for improving medical event reporting attitude and behavior. Quality and Safety in Health Care 2005;14:383-388.
9. Pope C, Mays N. Reaching the parts other methods cannot reach: an introduction to qualitative methods in health and health services research. British Medical Journal 1995;311:42-55.
10. Kitzinger J. Introducing focus groups. British Medical Journal 1995;311:299-302.
11. Morgan DL, Krueger RA. The Focus Group Kit , Volume 1 The Focus Group Guidebook. London: Sage Publications, 1997.
12. The Conceptual Framework for the International Classification for Patient Safety. World Health Organization, 2007.
13. Atlas.ti, The Knowledge Workbench, Visual Qualitative Data Analysis, Version 5.2.0, Scientific Software Development GmbH, Berlin.
14. Boeije HR. Analyseren in kwalitatief onderzoek: denken en doen. [Analysis in qualitative research: thinking and doing.] Amsterdam: Boom Onderwijs, 2005.
15. Ajzen I. The theory of planned behavior. Organizational Behavior and Human Decision Processes 1991;50:179-211.
16. Millstein SG. Utility of the theories of reasoned action and planned behavior for predicting physician behavior: a prospective analysis. Health Psychology 1996;15:398-402.
17. Kaldjian LC, Forman-Hoffman VL, Jones EW, Wu BJ, Levi BH, Rosenthal GE. Do faculty and resident physicians discuss their medical errors. Journal of Medical Ethics 2008; 34:717-722.
18. Schuerer DJE, Nast PA, Harris CB, Krauss MJ, Jones RM, Boyle WA et al. A New Safety Event Reporting System Improves Physician Reporting in the Surgical Intensive Care Unit. Journal of the American College of Surgeons 2006;202:881-887.
19. Fukada H, Imanaka Y, Hirose M, Hayashida K. Impact of system-level activities and reporting design on the number of incident reports for patient safety. Quality and Safety in Health Care 2010;19:122-27.
20. Ajzen I. Constructing a TPB Questionnaire: Conceptual and Methodological Considerations, 2006.
21. Francis JJ, Eccles MP, Johnston M, Walker A, Grimshaw J, Foy R et al. Constructing questionnaires based on the Theory of Planned Behaviour. A manual for health services researchers, 2004.
22. Ajzen I. Behavioral Interventions Based on the Theory of Planned Behavior, 2006.